We claim:

1. A DNA based number system wherein the system has four bases comprising A, T, C and G and wherein each base is assigned an arbitrary value comprising A=0, T=1, C=2, G=3 and wherein both integers and real numbers are represented in the form of DNA bases, the value of a the base in the system being positional.

2. A system as claimed in claim 1, wherein real numbers are represented as floating-point representation in 32-bases.

3. A method for representing numbers in the form of DNA bases (A, T, C, G) comprising:
   a) assigning arbitrary values to each DNA base wherein A=0, T=1, C=2, G=3;
   b) assigning arbitrary complementary values to each DNA base such that complement of A = G, complement of T=C and vice-versa.

4. A method as claimed in claim 3, wherein the number is selected from the group consisting of a positive integer, a negative integer, a positive real number and a negative real number.

5. A method as claimed in claim 3, wherein the assigned complements to the elements of DNA based number system are: Complement of A = G, Complement of T=C and vice-versa.

6. A method as claimed in claim 3, wherein the value of base in the DNA based number system is positional.

7. A method as claimed in claim 4, wherein the positive integer is converted into the DNA base representation by:
   (a) dividing the positive integer so obtained by four and extracting the remainder;
   (b) repeating step (a) till a quotient of 0 is reached;
   (c) marking the first remainder digit as the lest significant digit (LSD);
   (d) marking the last extracted digit as the most main significant digit (MSD);

(e) writing the digits extracted from left to right from MSD to LSD; and

(f) completing a cell by adding padding if required, and a sign base to the left.

8. A method as claimed in claim 4, wherein the negative integer is converted to a DNA base representation thereof by;

(a) first changing the negative integer into a positive integer;

(b) dividing the positive integer so obtained by four and extracting the remainder;

(c) repeating step (c) till a quotient of 0 is reached;

(d) marking the first remainder digit as the lest significant digit (LSD);

(e) marking the last extracted digit as the most main significant digit (MSD);

(f) writing the digits extracted from left to right from MSD to LSD; and

(g) completing a cell by adding padding if required, and a sign base to the left;

(h) producing a complement by changing the A's to G's and T's to C's and vice versa;

(i) adding a base T (=1) to the complement

wherein the left most base of the completed byte/cell represents the sign of the integer.

9. A method as claimed in claim 4, wherein the positive real number is converted into a DNA base representation thereof, comprising:

(a) first converting the positive real number into a positive integer by shifting the decimal point to the right

(b) dividing the positive integer so obtained by four and extracting the remainder;

(c) repeating step (b) till a quotient of 0 is reached;

(d) marking the first remainder digit as the lest significant digit (LSD);

(e) marking the last extracted digit as the most main significant digit (MSD);

(f) writing the digits extracted from left to right from MSD to LSD; and

(g) completing a cell by adding padding if required, and a sign base to the left.

(h) recording the number of points shifted and represented as an exponent

wherein the leftmost base represents sign base of the number, and next 23-bases represent the magnitude and the rest 8-bases represent the exponent.

10. A method as claimed in claim 4, wherein the sign base in the case of positive real number is "T" and sign base in the case of negative real number is "C".

11. A method as claimed in claim 4, wherein a negative real number is converted into a DNA base representation thereof, the method comprising

(a) taking the negative real number as a positive real number;

(b) converting the positive real number into a positive integer by shifting the decimal point to the right

(c) dividing the positive integer so obtained by four and extracting the remainder;

(d) repeating step (b) till a quotient of 0 is reached;

(e) marking the first remainder digit as the lest significant digit (LSD);

(f) marking the last extracted digit as the most main significant digit (MSD);

(g) writing the digits extracted from left to right from MSD to LSD; and

(h) completing a cell by adding padding if required, and a sign base to the left.

(i) recording the number of points shifted and represented as an exponent

wherein the leftmost base represents sign base of the number, and next 23-bases represent the magnitude and the rest 8-bases represent the exponent.

12. A software based on the DNA based number system of claim 1 wherein:

a) integers are represented as 8 bases/cell and a complement representation is used to represent integers and wherein positive integers do not have complements and the leftmost base represents the sign of the integer;

b) and wherein real numbers are represented as 32 bases/cell using floating-point representation scheme, wherein the leftmost base represents the sign of the number, next 23 bases represent the magnitude of the number and rest 8 bases represent the exponent i.e. number of bases the decimal was shifted towards right to convert the real number to integer.